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On the Variable Stars S Cancri and Algol. By Professor Argelander (*Ast. Nach.* No. 845).

M. Argelander has recently been devoting attention to the star *S Cancri*, which has been found to undergo periodical fluctuations of brightness analogous to those which distinguish the well-known variable star *Algol*. On the 19th of December, 1852, he perceived the star when its light was very faint. The interposition of clouds prevented him from observing the precise instant of minimum brightness, and when the sky again cleared up, the light of the star had already sensibly increased. He is of opinion, however, that the period of variation as ascertained by him, viz. $9^d\ 11^h\ 37^m$, cannot differ more than two minutes from the true value. All his observations of the star since February 16, 1850, agree very well with this determination; but he has not yet succeeded in observing an exact minimum. As the star affords a visible minimum only every nineteen days, there is little hope of a single individual accomplishing much by means of such observations, and it were therefore desirable that other astronomers should direct their attention to this remarkable object. A 5-foot Fraunhofer, or even a 4-foot instrument with a dark sky, will suffice for this purpose, and the star is easy to find by means of its situation with respect to *Præsepe* and *δ Cancri*. The following are the positions of the star, and also those of the stars of comparison for the mean equinoxes of 1800 and 1850.

		1800.		1850.	
		R.A.	Decl.	R.A.	Decl.
		h m s	° ′	h m s	° ′
Var.	*S*.	8 32 30	+19 44	8 35 22	+19 34
8 to 8·9	*a*	34 20	+19 46	37 12	+19 36
9	*b*	31 40	+19 46	34 32	+19 36
8	*d*	30 44	+19 38	33 36	+19 28
10	*e*	34 15	+19 35	37 7	+19 25

The variable star, and also *a* and *b*, are to be found in Bessel's Zone, No. 277. Lalande has observed each of the stars *a* and *d* twice; *e* is estimated by the eye; it forms with *b* and *S* nearly a right-angled isosceles triangle, the right angle being at *S*. The visible minima for the month of March are,

March 5 .... 7^h
— 24 6

M. Argelander recommends to those astronomers who may be desirous of aiding in such observations, to compare the variable star with either of the standard stars, by bringing them one after the other into the *centre of the field of view*, and not to observe both objects of comparison with the telescope in a fixed position, since the star which stands out from the centre always appears *too bright*. When it attains its minimum, *S* will be very nearly equal in brightness to *e*. M. Argelander remarks, that it begins to increase very rapidly; and he is inclined to suppose that its descent from the maximum is even still more rapid.

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The following table of the minima of *Algol*, which are visible in Europe during the present year, has been calculated by M. Argelander.

Visible Minima of Algol in the Year 1853.

Bonn M.T.

		h	m			h	m			h	m
Jan.	6	20	20	May	21	14	38	Oct.	3	8	56
	9	17	9		24	11	27		6	5	45
	12	13	58		27	8	16		17	17	1
	15	10	46	June	10	16	20		20	13	50
	18	7	35		13	13	9		23	10	39
	21	4	24		16	9	58		26	7	28
	29	18	51	July	3	14	52		29	4	16
Feb.	1	15	40		6	11	40	Nov.	6	18	43
	4	12	29		9	8	29		9	15	32
	7	9	18		23	16	34		12	12	21
	10	6	7		26	13	23		15	9	10
	21	17	22		29	10	12		18	5	59
	24	14	11	Aug.	1	7	1		26	20	25
	27	11	0		15	15	5		29	17	14
March	2	7	49		18	11	54	Dec.	2	14	3
	16	15	53		21	8	43		5	10	52
	19	12	42	Sept.	4	16	47		8	7	41
	22	9	31		7	13	36		11	4	30
April	8	14	25		10	10	25		19	18	57
	11	11	13		13	7	14		22	15	46
	14	8	2		24	18	30		25	12	34
	28	16	7		27	15	19		28	9	23
May	1	12	56		30	12	7		31	6	12
	4	9	45								

Elements of Comet III. 1847, *deduced from the totality of the observations* (*Ast. Nach. No.* 845, p. 77).

This comet, which was discovered by M. Mauvais on the 4th of July, 1847, is remarkable for having continued visible till the month of April, 1848: M. Gautier, having calculated elliptic elements from three observations, found the time of a complete revolution to be 31,500 years. This result induced him to confine his attention to the investigation of such elements as would best represent the motion of the comet in any assigned part of its course. To this end he corrected the elements by means of the totality of the observations, taking into account the perturbations of *Jupiter*, *Venus*, and the earth; and then compared the results of this correction with eight normal positions of the comet, deduced from the observations. The agreement, except in one or two instances, is sufficiently satisfactory.

London:—Printed by G. Barclay, Castle St. Leicester Sq.

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